an electrical bridge structure disposed on the substrate and electrically insulated therefrom, the bridge structure comprising a layer of a semiconductor material having a negative coefficient of electrical conductivity at temperatures above ambient temperature and having disposed thereover a layer of titanium, the bridge structure comprising a bridge section extending between and connecting spaced-apart pad sections, each pad section being of larger area than the bridge section; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed, made by a method which includes preconditioning the titanium semiconductor bridge igniter by heating it to an elevated temperature to stabilize it against temperature-induced variations in bridge electrical resistance.

Please add the following new claims.

17. (new) The semiconductor bridge igniter of claim 12, claim 13 or claim 14 further comprising a pair of electrical leads, one connected to a respective one of the electrically conductive lands.

18. (new) A semiconductor bridge igniter consisting essentially of:

a substrate;

an electrical bridge structure disposed on the substrate and electrically insulated therefrom, the bridge structure consisting essentially of a layer of a semiconductor material and having disposed thereover a layer of titanium, the bridge structure comprising a bridge section extending between and connecting spaced-apart pad sections, each pad section being of larger area than the bridge section; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed.

19. (new) The semiconductor bridge igniter of claim 1, claim 12 or claim 18 wherein the semiconductor material has, at ambient temperatures, a greater resistivity than the layer of titanium and, at an elevated temperature lower then the melting point of the layer of titanium, a lesser resistivity than the layer of titanium.

20. (new) The semiconductor bridge igniter of claim 19 further comprising a pair of electrical leads, one connected to a respective one of the electrically conductive lands.

21. (new) A method for initiating an energetic material using a semiconductor bridge igniter comprising a substrate, an electrical bridge structure disposed on the substrate and electrically insulated therefrom, the bridge structure comprising a layer of a semiconductor material having a negative coefficient of electrical conductivity at temperatures above ambient temperature and having disposed thereover a layer of metal, the bridge structure comprising a bridge section extending between and connecting spaced-apart pad sections, each pad section being of larger area than the bridge section, and a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed;

the method comprising applying a voltage across the lands to generate ohmic heating sufficient to melt the metal and vaporize the semiconductor material in the presence of the energetic material.

22. (new) The method of claim 21 comprising applying the voltage to generate a current through the metal and thereby heat the metal and the semiconductor material thereunder to a temperature at which the semiconductor material has a lower resistance than the metal and then generating a current through the semiconductor material to heat the semiconductor material to temperatures sufficient to melt the metal and to vaporize the semiconductor material.

23. (new) The method of claim 21 or claim 22 wherein the metal is reactive with oxygen.

24. (new) The method of claim 21 or claim 22 wherein the metal consists essentially of titanium.